DOCUMENT RESUME

ED 175 340 HE 011 644

AUTHOR Smith, James P.; Welch, Finis
TITLE The Overeducated American? A Review Article.
INSTITUTION Rand Corp., Santa Monica, Calif.
SPONS AGENCY National Science Foundation, Washington, D.C. National Science Board.
REPORT NO RAND-P-6253
PUB DATE Nov 78
NOTE 57p.
AVAILABLE FROM The Rand Corporation, Santa Monica, CA 90406 ($5.00)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Blacks; Cohort Analysis; *College Graduates; *College Role; *Economic Factors; *Educational Benefits; Females; *Higher Education; Labor Economics; *Labor Market; Manpower Needs; Social Factors; Success Factors
IDENTIFIERS *Freeman (Richard); Overeducated American (The)

ABSTRACT

A review is presented of Richard Freeman's "The Overeducated American," a book that proposes that the U.S. has entered an era in which the college degree cannot be assumed to be a safe avenue to economic success. Focus here is on five of the book's seven main conclusions. Freeman's evidence documenting the new depression for college-educated workers is examined and his model of how the college labor market operates and why the market became depressed in the 1970s is critically summarized. The demographic consequences of the baby boom cohort and speculation on why cohort size may matter for employment and wages is discussed; and an alternative to Freeman's explanation is offered. Welch's findings are contrasted with those of Freeman as they project the future economic viability of college for those entering the labor market in the 1970s. The second half of the review concentrates on Freeman's evidence on how the labor market changes impacted on blacks and women. It is concluded that the data do not reveal an overeducated American but rather relate adjustments to larger entering cohorts. Supporting statistics are cited and a bibliography is included. (PHR)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED175340

HE

THE OVEREDUCATED AMERICAN?
A REVIEW ARTICLE

James P. Smith
Finis Welch

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Rand Corp

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

November 1978

P-6253

HE 011 644

The Rand Paper Series

Papers are issued by The Rand Corporation as a service to its professional staff. Their purpose is to facilitate the exchange of ideas among those who share the author's research interests; Papers are not reports prepared in fulfillment of Rand's contracts or grants. Views expressed in a Paper are the author's own, and are not necessarily shared by Rand or its research sponsors.

The Rand Corporation
Santa Monica, California 90406

THE OVEREDUCATED AMERICAN?
A REVIEW ARTICLE*

James P. Smith**
Finis Welch***

November 1978

$5.00

*Funds for this review were provided by a grant from the National Science Foundation.

**Senior Economist, The Rand Corporation.

***Professor, Department of Economics, UCLA, and Senior Economist, The Rand Corporation.

INTRODUCTION

Richard Freeman's *The Overeducated American* is an important book. Its general thesis is that during the 1970s we have entered a unique episode in American history where we can no longer assume that the once revered college diploma is a profitable and safe avenue to economic success. Freeman argues that income returns from college have declined so rapidly since 1970 that from both a private and social perspective additional investments in college training will be marginal at best and are likely to remain so for many years to come. This rather gloomy message is delivered not only to those young people who must make their individual choices about attending college but also to those of us who make our livelihood in the education industry.

This book is a popularized version of Freeman's research previously published in academic journals and has many of the characteristics that have typified his work in the past. It is topical, energetic, imaginative and has an uncanny eye for identifying significant changes occurring in the world around us. It also has the most desirable attributes of good research in that it has stimulated many others to reinvestigate and challenge the evidence that Freeman so aptly presents. In this review, we have taken our opportunity to become devil's advocates. On the basis of our reexamination of the wage and employment data since the 1970s, we will argue that at best Freeman exaggerates the case for an oversupply of college-educated manpower and that he may in fact be dead wrong.

Freeman draws seven main conclusions in his book, which we paraphrase.

1. The college job market underwent an unprecedented downturn at

the onset of the 1970s, with young graduates just beginning their careers the most severely affected. In response to the depressed market, the proportion of young men enrolling in college dropped substantially reversing the long term upward trend in educational attainment.

2. Four major factors underlie the college job market; the responsive supply behavior of the young; the long working life of past graduates which makes total supply relatively fixed in the short run; the concentration of college graduates in certain sectors of the economy; and the cobweb feedback system due to the four-year lag between the decision to attend college and entry into the labor market. Freeman argues that the downturn of the seventies was caused both by a decline in growth of demand in industries relatively intensive in college-trained manpower and the large increases in supply due to the entry of the post war baby-boom cohorts.

3. Changes within the college labor market were as dramatic as those between college educated workers and others. The new depression altered significantly career decisions of new graduates. Because of reductions in enrollments and low birth rates, the decline in the college market was most severe in teaching and research positions. In contrast, graduates with degrees in business specialties, accounting, business administration, medicine and engineering were more immune from the worst consequences of the deterioration in the labor market. There was a general shift among new graduates away from academic and scientific fields to the traditional professional and business oriented specialties.

4. Federal policies contributed to the magnitude of the depression. Federal research and development spending reached a peak in the mid-1960s

and the resulting contraction in funds was a major contributor to the seventies bust. In addition, the curtailment of federal fellowship and scholarship programs during the 1970s contributed to the decline.

5. In spite of the market downturn, black college graduates fared reasonably well--a result of affirmative action and related anti-discrimination activity.

6. The job market for women graduates did not deterioriate significantly except in the case of teachers.

7. Forecasts of the state of the college labor market for new male graduates into the future indicate that it is likely to remain depressed throughout the end of the 1970s improving moderately in the early 1980s and rapidly in the late 1980s, although never returning to the boom conditions of the 1960s. The major equilibrating factor will be the reduced supply of new graduates. While the position of future graduates will improve, the future career prospects of current graduates may not. These cohorts might be substantially penalized throughout their work career by their bad luck in being members of a relatively large cohort.

In our review we will ignore the third (effects within disciplines) and fourth (the role of federal policies) conclusions, concentrating our efforts on the remaining five. This is not a reflection on their relative importance, but as devil's advocates who have never researched those particular issues we frankly have nothing to add to Freeman's excellent discussion. In any case. the basic message of his book lies in the other five arguments that address the broader market for college trained manpower.

Our review is organized as follows. We first examine Freeman's evidence documenting the new depression for college educated workers and critically summarize his model of how the college labor market operates and the reasons why this market became depressed in the 1970s. We then examine some of the demographic consequences resulting from the entry of the baby-boom cohorts and speculate about why cohort size may matter for employment and wages. These speculations suggest, at least to us, an alternative explanation of what really happened in this period. While not inconsistent with Freeman's hypothesis, it certainly shifts emphasis from comparisons among education classes to those between new entrants and more experienced workers. Using the 1968-1976 *Current Population Surveys*, we offer evidence on some drastic changes in the relative economic position of new entrants in the labor market. We conclude by briefly summarizing research findings obtained by one of us (Welch) predicting temporary and persistent effects of cohort size on wages and employment.[1] Freeman's and Welch's projections for the future viability of college as an avenue to economic success and likely economic status later in their work careers for those unfortunate enough to enter the labor market in the 1970s are also contrasted. In the second half of our review, we investigate Freeman's evidence on how these labor market changes impacted on blacks and women.

THE NEW DEPRESSION IN HIGHER EDUCATION

Although Freeman employs a number of indicators documenting the

---

[1]See "The Effects of Cohort Size on Earnings: The Baby Boom Babies' Financial Bust," Finis Welch, *Journal of Political Economy*, forthcoming.

decline in income of college graduates--starting salaries by field, recruitment visits to colleges, increasing dissatisfaction expressed by recent graduates in survey data--the essence of his argument is reproduced in Table 1. There, the relative earning of college to high school graduates are listed from 1967 through 1976 for all workers and for those employed full time, where presumably better control of employment variability is possible. These ratios are also provided separately for new entrants (those 25-34 years old) and older workers whose formal schooling long preceded this period. In his book, Freeman included only the years 1969 through 1974, and we have blocked out his sub-period in our table.

For those aged 25-34, the decline in the relative earnings of college graduates between 1969 and 1974 is indeed striking. Compared to high school graduates, the wage advantage of college graduates fell from 40 percent to 16 percent in just six years. This is in brief the new depression in higher education. Since many economists believed that the economic returns to college over the last thirty years were relatively constant, the experience of the early 1970s was certainly startling. However, one's despair over the prospects for college graduates is tempered by including years preceding 1969 and the 1975 and 1976 data.[1] The years Freeman selected were clearly peak to trough comparisons. The end point years in Table 1 indicate a decline of 8 percentage points (one-third of the peak to trough movement between 1969 and 1974). Although this may seem more akin to a recession than a

---

[1]These last two years were not available to Freeman although the earlier years were.

Table 1

RATIO OF MEAN INCOME OF COLLEGE TO HIGH SCHOOL GRADUATES

	Year									
	67	68	69	70	71	72	73	74	75	76
Year-Round Full-Time Workers										
Ages										
25-34	1.32	1.38	1.39	1.33	1.29	1.28	1.23	1.16	1.22	1.24
35-44	1.50	1.50	1.54	1.49	1.50	1.51	1.48	1.50	1.52	1.54
All Workers										
Ages										
25-34	1.33	1.32	1.33	1.33	1.27	1.22	1.19	1.15	1.19	1.26
35-44	1.53	1.47	1.58	1.54	1.55	1.55	1.52	1.55	1.56	1.55

SOURCE: Various issues of *Current Population Reports*; Series P-60.

depression, there is no question that relative wages of new college graduates declined during the 1970s. However, we may be more sanguine about future prospects given the recovery suggested by the 1975 and 1976 data.

If we have really witnessed a permanent decline in the demand for college graduates, the perplexing data in Table 1 are the relative wages for those aged 35-44. The most reasonable description of the data for 35-44 year olds is that it exhibits no trend over the period. The new depression appears at best to have been extremely selective in its targets, hitting only new entrants and leaving untouched those in the mean of the experience distribution.

What explanation does Freeman offer to explain the depressed market for college graduates in the 1970s? Chapter 3 outlines the analytic

core of his work, and the technical details are contained in Appendix B. There, Freeman develops a simple model of the college labor market, the reasons for its collapse, and some prospects for the future. His forecasts are derived from a recursive adjustment model of the supply and demand for college graduates, and we confine our discussion of his prospects for the future to a later section.

Freeman sees four key elements as determining the operation of the market for college graduates. The first is that prospective young college attendees are quite responsive and sensitive to the economic incentives of attending college. Broadly speaking, this economic incentive involves a comparison of the full wealth received by college graduates relative to that accruing to high school graduates. Changes in the relative values of these streams should then translate into relatively large adjustments in the number of college graduates. Wages of new college graduates are also viewed as quite flexible while rigidities partly induced by prior commitments constrain wage adjustments among older graduates further along in their work careers.

The second recognizes that most of the college work force received their degrees long ago, and cannot revoke that decision. Thus, even with responsive new entrants, total supply adjustments are likely to be quite slow, and a relative surplus or shortage in the market can persist for many years.

The third element relates to the relative growth in demand for college-trained manpower. The demand for college graduates depends among other things on the secular growth in demand in industries that are relatively college labor intensive. If there occurs a decline in

the relative demand for college manpower, the extent of necessary wage adjustment required depends on the degree of substitution of labor across education classes. If firms view workers stratified by schooling as relatively good substitutes, then most of the adjustment to the new market equilibrium will involve supply responses with little change in the relative wage structure across education clases. Freeman cites the large wage adjustments in the 1970s as indicating that substitution possibilities across different schooling classes are not large.

The final ingredient is the classic cobweb dynamics. Since it typically requires four years to finish college, Freeman argues that the supply of graduates is determined by signals received four years earlier. Thus high wages of college graduates on entering college translate into large entering classes which four years later increase supplies of new entrants and depress wages. Compounding the cobweb dynamics is an accelerator principle. Since universities are an important source of employment for many graduates, the demand of universities will be partly determined by the number of graduates. Increases in the number of graduates will increase demand of universities, which in turn improve prospects for new graduates, and result in further increases in the number of graduates.

Given this basic outline, what then caused the depression market? On the demand side, Freeman contends that the 1970s witnessed a significant decline in the relative demand in college intensive industries. Growth rates were simply slower in industries where large numbers of graduates have traditionally been employed. On the supply side, there was the entry in the late sixties of the highly educated post-war

baby boom cohorts.[1] Thus in the 1970s, the market collapsed because of sharply increasing supply as well as a leveling off in demand. There is one potential explanation of the market downturn that Freeman dismisses--that it resulted from the overall economic recession of the 1970s.[2] We will argue below that aggregate economic activity played a larger role than Freeman assigns, especially when one's perspective shifts from education comparisons to the new entrant labor market.

How well does Freeman's model explain the new depression? Using his empirical estimates, Freeman demonstrates that it certainly tracks both college enrollments and relative wages of new graduates remarkedly well both through the booming sixties and the ensuing seventies bust.[3] But the ability to reproduce the past is not the only criterion one uses in judging the value of a model. We must also examine its internal logical structure, the importance of behavioral relative to purely mechanical relationships, the correspondence of the empirical model to its theoretical counterpart, the robustness of the estimates to simple departures from assumptions or minor changes in the data, and its ability to project the future as well as tracking the past. Since we did not have the data to experiment with his empirical model, the concerns we express serve mostly as a caution that at this point something less than full acceptance of Freeman's model is in order.

---

[1] We will document the extent of these demographic changes below.

[2] For example, see p. 72.

[3] For example, see Fig. 9, p. 54, and Fig. 13, p. 71.

THE FREEMAN MODEL OF THE MARKET FOR BEGINNING COLLEGE GRADUATES

Freeman's empirical model is summarized in Appendix B of the book which, for convenience, we reproduce:

1. Supply of freshman males to college (1951-1973)

$$FRSH = -2.02 + \underset{(.21)}{.88}\ Pop + \underset{(.26)}{1.31}\ [CSAL - ASAL] + \underset{(.16)}{.21}\ FRSH(-1)$$

$R^2 = .987$ SEE = .049

2. Dependence of graduates on number of freshmen (1954-1973)

$$BA = -.63 + \underset{(.20)}{.71}\ FRSH(-4) + \underset{(.20)}{.29}\ FRSH(-5)$$

$R^2 = .976$ SEE = .061

3. Determination of college salaries (1951-1973)

$$CSAL = -2.25 - \underset{(.02)}{.15}\ BA(-1) + \underset{(.51)}{1.1}\ DEM + \underset{(.24)}{.31}\ ASAL + \underset{(.11)}{.45}\ CSAL(-1)$$

$R^2 = .994$ SEE = .018

where: FRSH = number of first-degree credit enrolled males;

Pop = number of 18 to 19 year old men;

CSAL = an average starting salary (in 1967 dollars);

ASAL = average annual earning of full-time workers (in 1967 dollars);

DEM = an index of demand, calculated as an average of employment in 46 industries (with fixed weights for the 1960 proportion of employment in each industry with college degrees); and

BA = number of male bachelor graduates.

Numbers in parentheses beside regressors indicate number of years lagged and numbers in parentheses below the estimated coefficients are estimated standard errors. All regression variables are in logarithms so that coefficients can be read as elasticities or ratios of percentage change. For example, in the first equation, the estimate is that other things equal an increase of one percent in the number of 18 and 19 year old men in the population increases freshmen enrollment by .88 percent and an increase in the number of freshmen last year of one percent, increases the number of freshmen this year by .21 percent.

The behavioral component of the first equation relates the decision of potential freshmen to enroll to the relative income advantage of a college degree as proxied by (CSAL - ASAL). The second equation is a mechanical relation between number of BA degrees granted and freshmen enrollment four and five years earlier. The key behavioral link in the third equation is the effect of the supply of BAs (BA(-1)) on the wage of new graduates. Thus the process is one in which current salaries of college graduates (relative to others) attracts an entering freshman class of a certain size. Four years down the road, these freshmen become newly produced BAs who will depress college wages one year later. This lower wage will then reduce the number of new freshmen and we are off and running on another round.

Freeman's computed R^2's which suggest a "good fit" are not uncommon to time-series data. All in all, the statistical model is well behaved and suggests extraordinary sensitivity to economic factors. For example, in the freshman enrollment equation, the [CSAL - ASAL] variable, the ratio of beginning salaries to average salaries for

full-time workers has a higher partial correlation (0.76) with enrollments than either the number of enrollments last year or the 18-19 year old population. In trying to interpret regressions of this sort, however, it is important to keep in mind the fact that the underlying data are highly correlated and regression estimates are subject to non-trivial estimation error.

A literal reading of the freshmen enrollments equation suggests that the number enrolling last year has no statistically significant effect on enrollments this year *given the 18-19 year old population*. This is quite possibly an artifact of the correlation between the size of the 18-19 year old population and freshmen last year. From the data Freeman reports, we cannot calculate this correlation, but we can compute what the regression R^2 would be if the [CSAL - ASAL] (the only behavioral) variable were deleted--.970 as opposed to .987 when it is included. The .970 R^2 that obtains with [CSAL - ASAL] deleted is, of course, the lowest of the regressions possible when omitting one of the three regressors and is a clear indication of the colinearity in these data.

Colinearity in and of itself does not introduce bias, but it does give estimates that are likely to be sensitive to specification. In such a case the high multiple R^2 guarantees success in tracking data. But the fact that these data could have been tracked almost as well (R^2 .970 versus .987) as a purely mechanical relation between population and enrollments last year without reference to economic variables is reason for care in interpreting the role of economic variables.

Of course, in comparison to the third equation, the determination of beginning salaries, the implied role of economic variables in the

enrollment equation pales considerably. The partial correlation between beginning salaries (this year) and the number of BAs (last year) is 0.87, but the same colinearity proviso holds: If the variable referring to the number of BAs was deleted from the beginning salary equation, the R^2 would be .975 instead of .994 when it is included.[1]

Before examining the logic of the model, one observation concerning data seems in order. The supply equation for college enrollments uses the ratio [CSAL - ASAL] as an indicator of the prospective income gain to college. Unfortunately, the denominator of this ratio, the average salary of full-time workers, includes college graduates too. As a result, growth in the college graduate share of full-time work force (see Freeman's projections, from 15 percent in 1969 to 25 percent in 1990, Fig. 14, p. 75, for the male labor force) will build in spurious decay in the beginning/average salary ratio. In addition, this income ratio measures the earnings of new college graduates relative to average male earnings. It is as much a proxy for the wage of new entrants relative to peak earnings as it is for the income advantage of college graduates. As Freeman notes, this measure is forced by data limitations

---

[1] We have noted that with colinearity regression estimates are sensitive to specification. As such, Freeman might have considered alternative specifications to dispel concerns (like ours) that results may not be robust. There are two rather obvious re-specifications that present themselves.

First, in Equation 3, CSAL(-1) and ASAL appear in free form. This is because of the recursion in CSAL. In contrast, in Equation 1, coefficients on CSAL and ASAL are constrained to be of equal numerical value and opposite sign. Why not free these coefficients in Equation 1? A finding of opposite sign but equal value would strongly support Freeman's contention that only relative wages matter.

Second, in Equation 3, the number of BAs this year does not affect this year's starting salaries, but the number of BAs last year does. Why not permit both to have an effect; i.e., include both BA and BA(-1) and see what estimates emerge?

outside his control, but it does make one wonder what model of the labor force is really being tested.

THE LOGIC OF THE STATISTICAL MODEL

Freeman's model has three characteristics that are more or less familiar to economists. It is recursive in the sense that for the enrollment and salary equations, where you are today depends on where you were last year, and the current crop of BAs depends on freshman enrollments four and five years ago. Part of it is based on an accelerator idea, that an increased supply of students creates an increased demand for teachers. Usually accelerators contribute to dynamic instability, but in Freeman's implementation the accelerator loop seems not to be closed. The demand measure (presumably) encompasses employment in education "industries," but there is no feedback noted between employment in these industries and the number of college graduates in process (students). The accelerator idea, which is quite appealing, was lost somewhere in the empirical implementation of the theory.

The final feature which also applies to Freeman's earlier work[1] is that of the cobweb which, as Freeman notes, was first used in studies of agricultural markets. Let's go through the model's dynamics. Equation 1 suggests that the number of enrollments this year is affected by current population of 18 and 19 year olds, by last year's enrollments

[1] *The Labor Market for College-Trained Manpower.*

and through them whatever affected enrollment last year, and by the ratio of beginning college graduate salaries to average full-time worker salaries. Other than for the inertia of the recursion that last year's freshman looked at salaries last year, and so on, this year's freshmen are myopic: They ignore salaries of older graduates in favor of the wage this year's graduates receive.

After four or five years, this year's freshmen "hatch" as BAs (Equation 2), and one year later they drive salaries of beginners down. It is not clear why an increased number of graduates this year does not reduce this year's starting wage, but it makes sense that a large crop this year might "overhang" the market and drive next year's wage down.

Now trace the cobweb. Suppose that this year's starting wage is "high." If so, when the students attracted by this wage hit the job market, the starting wage will be "low." The rub with this kind of model is that it forces expectations to be frustrated. The implication of the supply model is that prospective freshmen expect to receive the salary that obtains when they enroll and yet the model's dynamics imply that a one percent higher salary today lowers the wage received on graduation from .14 to .20 percent. How many cycles would have to occur before prospective freshmen caught on?

This kind of model is the antithesis of the full-career view we sketch below where high entry wages signal low subsequent wages and vice versa. We don't really know how prospective students form expectations about post-graduate earnings. We do know, however, that

if they behave myopically and if salaries are as sensitive to the number of BAs as Freeman's calculations suggest, then high school and college counselors would be well advised to warn their students: Things are not only not what they seem, they are the opposite.

BUSINESS CYCLES

Our skepticism about some of the mechanics of the model Freeman uses to explain the new depression draws our attention to one explanation he dismisses. Nature unfortunately provides us with few uncontaminated experiments. Coincident with the entry into the labor market of the baby boom cohorts, the overall economy was depressed relative to its recent past. As background for the wages of individuals observed over the 1967-1974 period, we had a macro-economy that began as very robust, experienced a mini-recession in 1970 that bottomed in 1971, rebounded in 1972 and 1973, and again floundered late in 1974 (as described by yearly unemployment rates in Table 2). With this year-by-year volatility, it would be surprising if all workers designated by skill or job experience were similarly affected. Just as the labor market was forced to assimilate the largest and most educated class of new entrants in its history, the business cycle deterioration certainly made that task much more difficult. Can these business cycle trends explain not only part of the difficulties encountered by young people across all education levels, but also some of the decline in the relative earnings of new college graduates? On the latter question, Freeman answers in the negative because he assumes that college graduates are less vulnerable to recessions than those with less schooling.

Table 2

MEASURES OF ANNUAL LEVELS OF CYCLIC ACTIVITY

	Year							
	1967	1968	1969	1970	1971	1972	1973	1974
A. Annual Average Unemployment Rate, White Males	2.7	2.6	2.5	4.0	4.9	4.5	3.7	4.3
B. Percentage Deviation from Trend of Industry of Employment[a] by Year								
High School Graduates	1.8	2.3	3.8	0.9	-2.2	-1.5	0.5	0.6
College Graduates	1.7	2.3	3.5	1.5	-1.4	-1.4	-0.6	-0.2

[a]These are weighted averages for industry deviations of employment from trend. The weights are employment shares by industry for college and high school graduates. These are presented in Smith-Welch (1978a, Table 4).

His view is based on the theory of skill specificity.[1] The notion is that firms invest (through hiring, training costs, etc.) in their workers and protect those investments as demand falls by reducing utilization rates rather than by terminating employment altogether. The skill composition part of the theory is gained by positing that the firm's specific investment share of labor's products is positively correlated with skill level. Thus the firm protects its skilled work force relative to the unskilled group under temporary downwards trends.

However, while this theory makes sense for experienced workers, one must be careful in applying it to new entrants where most of Freeman's wage action takes place. With firm specific training, it is important to distinguish between insiders (those where training and hiring costs have already been incurred) and outsiders (potential new hires with positive training and hiring costs). If firm specific training predicts that during downturns a firm will underutilize its in-place skilled labor force (essentially hoarding its skilled labor for fear of losing prior investments), what is the likely plight of a highly skilled new entrant? The forces that tend to stabilize demand for its experienced workers are exactly the same as those that could destabilize demand for new entrants. Such a view would predict pro cyclic ratios in income returns to schooling for new entrants relative to the experienced work force.

---

[1] An alternative theory often used to explain why skilled labor is less vulnerable to cycles posits that substitution elasticities between (short-run) fixed capital and "unskilled" labor exceed those between "skilled" labor and capital. If substitution relationships are as posited, then the demand for unskilled labor falls relative to the demand for skilled labor as firms compensate for capital fixity.

In a recent paper we examined this notion by investigating earnings of new entrant high school and college graduates using data from the March 1968-1975 *Current Population Surveys*.[1] Our finding was that within industries, business cycles were neutral between new high school and college graduates. Any aggregate non-neutrality for them seems to be an artifact of differences in the industrial composition of employment. But, college/high school graduate differences in employment patterns are large and there is much room for compositional effects. For example, 43 percent of all new entrant college graduates work in service industries (largely health, education, and professional services) while only 11 percent of high school graduates work in these industries. In contrast, 49 percent of high school graduates and only 24 percent of college graduates work in manufacturing. High school graduates work in industries that are disproportionately vulnerable to business cycles and, for "normal recessions," they are more affected than college graduates. We calculated individual year deviations in employment from trend for college and high school graduates separately. These are listed in Table 2b for the years 1967-1974. If our indices are adequate proxies for cyclic variability, differences by schooling level measure compositional effects of cycles.

In fact, 1971 appears to have been a normal recession and, as Table 1 showed, relative earnings of college graduates were unusually high that year. But 1973 and 1974 were atypical. In both years industrial employment patterns were mixed with some industries lying above long-run trend and others below trend, and in the aggregate employment

---

[1] See Smith-Welch, "Local Labor Markets and Cyclic Components in Demand for College Trained Manpower," 1978a.

was relatively depressed in industries disproportionately employing college graduates. The sharp decline in relative earnings of college graduates, particularly in 1974, was probably due in part to cyclic factors. While business cycles contributed to the magnitude of some of the swings exhibited in Table 1, after we corrected for business cycles, the basic trend of declining wages of new college graduates, although slightly muted, remained. Thus, the new depression in college education, while possibly exacerbated by business cycle conditions cannot be explained by them. However, when we examine the new entrant labor market below, we shall see that business cycles did not play a trivial role.

WHAT DOES OVERSUPPLY MEAN--THE CASE OF PLUMBERS

To this point, we have limited our comments to those directly related to the contents of Freeman's book. For the remainder of this review, we free ourselves of this restriction so that we can more directly question what is really the fundamental thesis of his work. Freeman's major point is that the supply of college-trained manpower is increasing faster than demand and he supports this view by showing declining relative earnings for new entrant college graduates. Ordinarily if the supply of something were to increase faster than demand, we would expect its price to fall, and Freeman's evidence is suggestive. Yet for prospective college students, full career earnings, not just entry wages, are important, and the fact that earnings of prime aged college graduates have not fallen relative to earnings of similar high school graduates is reason to examine the evidence for new entrants more closely.

Freeman's calculations of rates of return, of income gains associated with college attendance, which he presents in Appendix A, are

based on the idea that full-career earnings are relevant. This perspective, often called the human capital view, is appealing for understanding occupational choice regardless of whether the choices involved refer to differences in school completion levels or not. It is nothing more than a simple statement that full careers matter. But from such a perspective the distinction between entry and subsequent wages is crucial, and it is easy to devise cases in which signals imbedded in entry wages are misleading.

Suppose, for example, that people choose between skilled craft occupations by selecting that occupation having the greatest (present value of) lifetime earnings. If this were the only criterion of choice, and if there were no restrictions on entry, then market equilibrium would obtain such that lifetime earnings in each of these occupations would be equalized. Now consider one of these occupations--plumbers.

A plumber's career consists of two phases, an apprenticeship followed by full journeyman status. The apprentice performs different tasks that are more conducive to learning and require less skill and, among other things, the value of these tasks depends on the numbers of journeymen available to apprentices. As the number of apprentices increases relative to the number of journeymen, the value of apprentice tasks falls relative to the value of journeyman tasks.[1] Now suppose that there is

[1]We can think of this relation as having two parts. The apprentice is both learner and worker. The amount of work available to apprentices depends on the amount of work done by journeymen (apprentices are in part journeymen's helpers), and increased apprentice/journeymen ratios reduces the work available to each apprentice. Learning by apprentices requires time from their journeyman teachers, and increased apprentice/journeyman (student/teacher) ratios increases learning costs of apprentices.

an unanticipated *increase* in demand for plumbing services. In the short run, the number of journeymen cannot be increased so the effect is to increase journeyman wages. The number of apprentices can, of course, increase and the improved prospects for journeymen is sufficient to do so. From this, it follows that a short-run equilibrium that equates full career earnings of plumbers with alternative craft occupations calls for *lower* apprentice wages when journeyman wages exceed their long-run equilibrium levels and vice versa.

This is not to say that recent declines in relative earnings of new entrant college graduates can be construed as evidence that demand is increasing faster than supply. We would be more optimistic if relative earnings of prime aged college graduates had increased, but on the other hand the stability of relative earnings of prime aged workers is reason for skepticism about any broadly based reduction in demand for college trained workers. The example of plumbers is relevant because even though college graduates do not ordinarily transit through formal apprenticeships, they do follow careers involving non-trivial learning phases during which tasks performed are not always the same as those of the senior members. Moreover, the apparent constancy of relative earnings for prime aged college and high school graduates coupled with changes for new entrants, diverts our attention from broadly defined markets for the college trained to markets for recent entrants. Not only do we observe the income behavior Freeman summarizes, but the new entrant labor market exhibited other interesting features after 1967 which we now explore.

WHAT THE BABY-BOOM COHORTS DID TO THE LABOR FORCE

In Fig. 1, fertility rates are graphed from 1947 to 1975. Birth rates increased sharply after 1947 and peaked in 1957, a trend popularly labeled the baby boom. After 1960, fertility rates decreased rapidly until by 1975 they had reached their historic lows (the baby bust). That these dramatic swings in fertility rates produced large shifts in the education and age distribution of the work force two decades later is documented in Tables 3 and 4. Table 3.A lists five-year percentage increases in the labor force by schooling level since 1952. As the baby-boom-cohorts began entering the labor market in the late 1960s and the 1970s, the total size of the labor force expanded by 21 percent from 1967 to 1975. In fact, in absolute numbers the

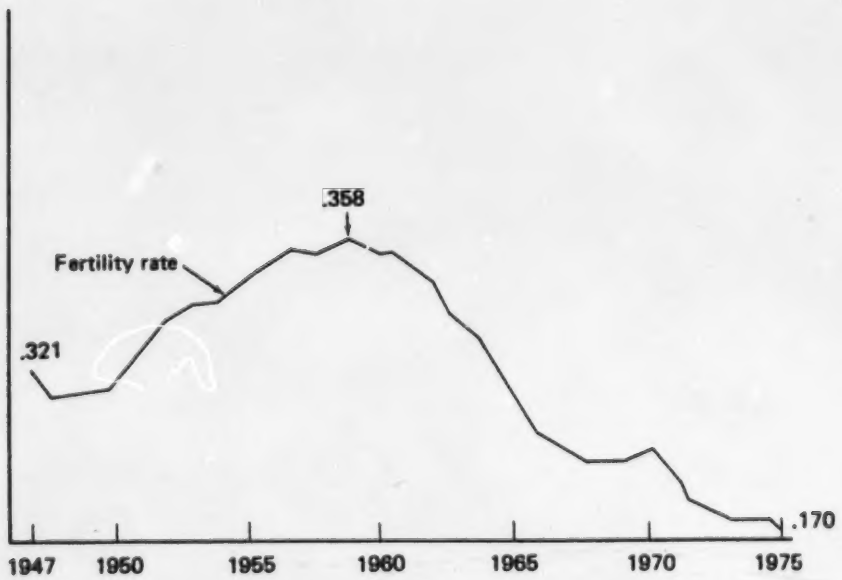

Fig.1 — Fertility rates 1947-1975

total labor force grew more in these eight years than it did in the fifteen preceding years. Not only were labor markets pressed by the entry of those just out of school, but participation rates of married women have increased and veterans of Vietnam have joined the labor force as well.

Table 3

GROWTH IN LABOR FORCE

A. Percentage Growth in Civilian Labor Force by Education[a]

Year	Total Labor Force	Years of Schooling				
		5-8	9-11	12	13-15	16 and over
52-57	5.73	-6.41	9.61	16.0	9.47	20.1
57-62	7.39	-12.2	6.31	16.2	30.6	29.6
62-67	8.60	-13.8	4.17	23.1	20.8	18.4
67-72	12.91	-20.0	0.89	23.2	35.6	31.6
72-75	7.20	-15.9	-6.28	9.57	20.7	24.6
72-75[b]	11.99	-26.5	-10.5	16.0	34.5	41.0

B. Yearly Percentage Growth Rates in Male Civilian Labor Force by Age 1967-1975[c]

Year	Age			
	20-24	25-34	35-44	45-54
67-69	.023	.035	-.014	.007
69-75	.058	.040	-.004	.001

---

[a]SOURCE: *Educational Attainment of Workers*, March 1975 Special Labor Force Report 186, Table A.

[b]Adjusted to 5-year growth for comparability with earlier periods.

[c]SOURCE: Derived from *Handbook of Labor Statistics 1976*, U.S. Department of Labor.

Even though the total labor force grew by one-fifth since 1967, the number of workers with 5-8 years of schooling fell by 32 percent and those with 1-3 years of high school declined 6 percent. In contrast, during these eight years the number of high school workers grew by 35 percent, and both for those with 1-3 years of college and for college graduates the number of persons in the civilian labor force jumped an astonishing 64 percent. As indicated in Table 3, the increase in the number of college graduates was much larger after 1972.

These new cohorts not only altered educational distributions but they obviously affected directly the age distribution of the work force. Table 3.B lists yearly percentage rates of growth by age for the male labor force. The total number of 20-24 year old workers in the force increased by 47 percent since 1967, with the yearly rate of growth after 1970 more than double that from 1967-1969. Similarly, the number of men aged 25-34 in the labor force expanded by 36 percent over these eight years. In contrast, the total number of male workers over 35 has actually declined since 1967.

These age and education trends impacted doubly on more recent entrants. Table 4 provides percentage growth rates for high school and college graduates by age groups for two sub-periods between 1966 and 1970. After 1970 the number of college graduates 20-34 years old increased by over 80 percent! There was also a rapid increase in the number of young high school graduates relative to those over 35. Freeman's book and our review highlight some of the problems these demographic changes caused and the resulting adjustments made in the labor market, especially for more educated manpower. But given this

Table 4

GROWTH IN MALE LABOR FORCE BY EDUCATION AND AGE 1966-1976

A. Percentage Change Between Years

	College			High School		
	20-24	25-34	35+	20-24	25-34	35+
66-70	34.0	12.4	7.2	12.9	15.2	13.3
70-76	82.4	83.6	21.1	43.4	39.3	28.1

B. Bi-yearly Percentage Change for Youth

	College		High School	
	20-24	25-34	20-24	25-34
66-68	3.12	6.67	0.41	7.42
68-70	29.6	5.52	12.5	7.30
70-72	50.8	16.1	19.2	5.81
72-74	3.12	23.8	8.61	6.21
74-76	17.2	27.7	10.7	23.4

SOURCE: Educational Attainment of Workers, Special Labor Force Reports, selected issues.

historically unprecedented growth in the labor force after 1968 and its concentration among the young and more educated graduates, one may be more impressed by the economy's ability to absorb these shocks than by the difficulties encountered. Those who tend to worry about how the U.S. private economy can "create" jobs will find it hard to explain what happened in the American economy during this period.

WHY DOES COHORT SIZE MATTER?

The American economy undergoes a continuous process of compositional change induced in part by past decisions on family size and educational attainment. The recent experience was an extreme example, but there are many other instances in American history during which the size and educational distribution of the work force changed significantly in a relatively short period of time What do we (economists) know about the effects of such changes and cohort size in particular on the wage and employment structure within the labor force? A truthful answer is embarrassingly little. While the effects of cohort size have at times been used to explain other types of behavior,[1] their direct impact on wage structures have typically been asserted rather than investigated.

We will summarize in the following sections some recent empirical estimates by Welch on the effects of cohort size. But, encouraged by the relative scarcity of evidence on these effects, we will first speculate about some potential mechanisms through which cohort size may matter. What sort of world do members of large cohorts confront? They spend their childhood as members of relatively large families competing with their siblings for limited family resources. Not only is family income spread over more children, but the time and care of parents devoted to each child is probably reduced. Then, they attend crowded elementary and secondary schools where teacher-student ratios are higher than the norm, and limited sessions with smaller daily hours, particularly in the lower elementary grades, were common. They may also face an environment

[1]See, for example, the interesting work of Easterlin on fertility trends.

structured by the smaller cohorts that preceded them where the number of available "slots" in prestigious high schools and colleges are slow to adapt. What the accumulated impact on eventual marketable skills of these factors was we simply do not know. Sociological research on the effects of family background suggests these effects may be quite real, and the declining SAT scores beginning in the mid-sixties may bear witness to it.[1] Barring full compensatory behavior by these cohorts, this class of cohort effects is likely to be long-lived, penalizing its members throughout their work careers. These cohort size effects refer to quality per se and, like it or not, we believe that there are good reasons to expect adverse effects for members of large cohorts.

There is another set of factors set in motion as these cohorts enter the labor market that are the natural province of economists. Large cohorts alter relative factor ratios, and the most straightforward prediction of economic theory is that relative wages will decline. Indeed, we conjecture that the real permanent contribution of Freeman's work is that it has raised this aspect of cohort size to serious scholarly concern. Only if all workers, regardless of experience or schooling level, substitute perfectly for each other is the structure of earnings independent of cohort size. If perfect substitution does not rule, then relative wages will be altered by changing relative numbers of workers across schooling levels or years of experience. Unfortunately, economists have little hard evidence on the degree of such substitution possibilities, particularly as they relate to workers arrayed by job tenure. With workers classified by schooling and experience or date of entering the

[1] Complaints by our university colleagues on the quality of contemporary students could also be cited. But, after listening to these complaints for many years, we are not sure we detect a secular drift.

work force, the number of possible specifications of substitution patterns is too large to expect unstructured data to be able to sort through them.

Freeman argues that the declining relative wages of new entrant college graduates is an indication that substitution across schooling classes may not be large. But the absence of any effect on more experienced college workers becomes especially puzzling if the main differentiation is one across schooling classes. The long-term relative constancy in relative wages across schooling classes also makes one cautious in relying too heavily on small substitution possibilities by education. An alternative perspective which highlights distinctions across phases of a work career seems to us to offer greater potential in explaining wage behavior resulting from the entry of these large cohorts in the 1970s.

Independent of quality considerations referred to above, the productivity of a cohort may be inverse to its size. This relation, often called the "law" of diminishing productivity, can be illustrated by pursuing the example of plumbers which we referred to earlier.

Suppose that there is an exogenous increase in the number of apprentice plumbers. In learning-intensive career phases, apprentices are partly journeymen helpers. An increase in the number of apprentices relative to the number of journeymen simply increases the amount of help available to each journeyman and enhances the productivity of journeymen, at least relative to apprentices who through "crowding" become less productive. But as today's large entering cohort transits at some later date into journeyman status, the number of journeymen will increase relative to the number of apprentices unless future entering cohorts are

also large. Thus throughout its career, a large cohort implies a relatively large number of workers in each of its career phases so that the adverse effects of size persist. Yet there are good reasons to expect these effects to be magnified at entry relative to subsequent points in the career. Suppose, for example, that a plumber's career spans 45 years, 5 years as an apprentice and 40 years as a journeyman. Suppose also that the ability of an apprentice or journeyman to do plumber's work depends only on the apprentice/journeyman ratio--an increased ratio reduces the productivity of apprentices while increasing productivity of journeymen and vice versa. Now, if the market were in a stable equilibrium with a constant number of plumbers, there would be an equal number of workers at each of the 45 work experience years so that the number of retirees each year (those completing their 45th year on the job) would equal the number of apprentice recruits. In this case there would be one apprentice for every eight journeymen (5 apprentice years/40 journeymen years). If a new cohort were exactly twice as large as usual, and if all subsequent cohorts were the normal size, then for each of the new cohorts apprentice years the number of apprentices would be 20 percent above normal, while for each of its journeyman years the number of journeymen would be only 2.5 percent above normal.

There is another reason to expect that initial effects will decay over work careers. As large new cohorts enter, they impact differently on experience, schooling, occupations, and industry groups. Initial wage reductions should be correlated broadly with the size of the new cohort in the occupation and industry grouping. These initial wage effects create incentives for those most affected to enter and acquire those skills required in the least affected areas.

In a sense, the labor market operates as a melting pot eventually blending in workers to smooth out the initial perturbations.

THE OVEREDUCATED AMERICAN OR THE OVERCROWDED NEW ENTRANT?

We have seen that the entry of the highly educated post-war baby boom cohorts produced two important demographic changes in the labor force. There was, of course, the increase in the relative number of college graduates that Freeman emphasizes. But it also substantially altered the age distribution of the labor force for both high school and college graduates, increasing the number of young workers (new entrants) relative to the experienced work force (peak earners). Which of these trends dominated the labor market adjustments since 1970? The answer to that question depends partly on the relative ease of substitution across schooling classes compared to substitution within schooling classes between new entrants and "mature" workers. But let's first see what the numbers say.

To do this, we used the 1968-1976 *Current Population Surveys*, which are the basis for the published data Freeman summarized in Table 1, to compute income ratios across schooling and experience classes.[1] The income data refer to the year prior to survey so our trends span the 1967-1975 time frame. In Table 5 we list college/high school ratios of weekly wages and annual earnings for those aged 25-34. Freeman's ratios

[1]Each of these nine surveys includes from 130,000 to 152,000 people. Of these, from 25,000 to 27,000 are included in our tables. They are civilian, white male, age 14-65, not now in school (as their major activity last week), who either worked 50-52 weeks in the previous year or report the reason for working fewer weeks as something other than being in school or retired. Those self-employed or working without pay were also excluded. Our samples clearly do not correspond precisely with those employed in the published tables.

in Table 1 for full-time workers correspond most directly to our weekly wage ratios. Although trends in Table 5 are similar to those in Table 1, our peak levels of relative income of college graduates at the beginning of the decade are below his and our turning point in maximum relative earnings occurs in 1970 rather than 1969. Yet, the basic trends tracked in Tables 1 and 5 are quite similar.

There is one problem with the 25-34 age bracket forced by the use of published data. If the typical high school graduate entered the labor market at age 19, and the mean age in that interval was 30, then Freeman's average high school "new entrant" would have 11 years of market experience. In fact, some of these "new entrants" have been in the labor market for as long as 15 years, with relatively few in for less than five years.

Table 5

RATIOS OF EARNINGS OF COLLEGE TO HIGH SCHOOL GRADUATES FOR NEW ENTRANTS

Age Group	Year								
	1967	1968	1969	1970	1971	1972	1973	1974	1975
	A. Weekly Wages								
25-34	1.27	1.29	1.30	1.32	1.30	1.28	1.24	1.19	1.23
College 25-34/ High School 20-29	1.52	1.54	1.55	1.57	1.54	1.51	1.51	1.47	1.48
	B. Annual Earnings								
25-34	1.33	1.30	1.32	1.34	1.34	1.30	1.25	1.23	1.31
College 25-34/ High School 20-29	1.56	1.55	1.57	1.62	1.64	1.61	1.61	1.58	1.69

This certainly does not correspond to common sense notions of who new entrants are. More importantly, it could conceivably contaminate comparisons if most of the depressing labor market effects impacted on true new entrants who are more likely to be represented in the college group. Therefore, we also include in Table 5 income ratios for college graduates aged 25-34 relative to high school graduates aged 20-29. Since college graduates enter the labor market at least four years later than high school graduates, these ratios should more closely approximate workers with similar tenure in the work force. While the weekly wage ratios still exhibit a rising trend to 1970 and a decline thereafter, one is clearly less impressed by the magnitude of those changes. The 1975 wage ratio is only 4 percentage points below the 1967 ratio. Relative wages of college graduates did indeed decline after 1970, but reports of the demise of the college degree may have been premature.

The sensitivity of earnings ratios to these age intervals brings us to new entrants. In Tables 6 and 7, ratios of weekly wages and

Table 6

RATIO OF WEEKLY WAGES OF PEAK EARNERS TO NEW ENTRANTS

Age Group	Year								
	1967	1968	1969	1970	1971	1972	1973	1974	1975
					High School				
35-49/20-24	1.52	1.60	1.55	1.61	1.64	1.67	1.74	1.72	1.70
35-49/20-29	1.33	1.36	1.33	1.38	1.39	1.41	1.46	1.47	1.46
					College				
40-54/25-29	1.61	1.49	1.48	1.50	1.64	1.71	1.65	1.74	1.87
40-54/25-34	1.39	1.31	1.38	1.38	1.44	1.47	1.43	1.51	1.60

Table 7

RATIO OF ANNUAL EARNINGS OF PEAK EARNERS TO NEW ENTRANTS

Age Group	Year								
	1967	1968	1969	1970	1971	1972	1973	1974	1975
					High School				
35-49/20-24	1.56	1.66	1.64	1.73	1.81	1.84	1.86	1.86	1.93
35-49/20-29	1.35	1.38	1.36	1.43	1.46	1.48	1.52	1.53	1.59
					College				
40-54/25-29	1.63	1.52	1.55	1.54	1.67	1.73	1.71	1.79	1.91
40-54/25-34	1.40	1.33	1.39	1.39	1.44	1.48	1.45	1.53	1.62

annual earnings for peak earners relative to new entrants are provided. For high school graduates, peak earners are those aged 35-49 and two definitions of new entrants are employed, men 20-24 years old and those in the 20-29 age interval. To capture college graduates at similar points in their labor market careers, peak earners include men 40-54 and new entrants are men aged 25-29 and 25-34.

For both annual earnings and weekly wages and for *both high school and college graduates*, the fall in the relative incomes of new entrants dwarfs any changes examined in the relative wages across schooling groups. The maximum decline in the weekly wages of 20-24 year old high school graduates was 22 percentage points, with an end point change of 18 percentage points. As one would suspect, these changes are smaller when older new entrants (20-29 year olds) are considered, but the end point comparison is still 13 percentage points. For college graduates (ignoring the somewhat anomalous [to us] 1967 ratio), the trough to peak movement is 39 percentage points for the youngest new entrant category and

29 percentage points for those aged 25-34. Note, in particular, that most of this decline occurred after 1970 and, as we have seen in Table 3b, population growth rates were twice as large after 1970 compared to the 1967-1969 period.

Turn next to annual earnings of peak earners to new entrants. For the youngest high school graduates, we now observe a 37 percentage point decline in relative earnings of new entrants, and for the youngest college graduates a 39 percentage point drop. Since the difference between annual earnings and weekly wages represents weeks worked, for high school graduates, half of the decline in relative wages of new entrants involved reduced employment.[1] The good news in that bleak statistic is that employment effects tend to be much more transitory than wage effects so that eventual improvements for these new entrants should arrive sooner and be larger. How permanent are these effects likely to be?

THE NEW DEPRESSION: ULCERS OR INDIGESTION?

In a recent paper, one of us (Welch) estimated the effects of cohort size on initial wage and employment of members of that cohort as they entered the labor market, as well as the persistent long-term effects on that cohort as they proceed through the mature stages of their work careers.[2] Welch reports that initial effects on new entrants were large

---

[1]Unemployment rates of male high school graduates as of October in year of graduation were:

1967	1968	1969	1970	1971	1972	1973	1974	1975
9.5	10.2	7.6	12.9	14.0	12.3	12.3	15.3	19.1

SOURCE: *Handbook of Labor Statistics 1976*, Table 32.

[2]For the methodology underlying these estimates, see Welch (1978).

for wage rates, weeks worked, and hours per week. These effects were also larger among college graduates than high school graduates. This may reflect lower substitution among college graduates across their career phases suggesting that worker-learner substitution elasticities fall with increased schooling. Sharper distinctions among college labor in skills acquired over the life-cycle has some intuitive appeal.

However, these initial effects decayed over work careers so that by the time workers have been in the labor force for 10 years, Welch finds essentially no long-term effects on hours or weeks. Since most workers eventually assume full-time permanent jobs, the exclusive concentration of employment effects at the front end when workers are pursuing their first job or engaging in considerable job switching is not surprising. Wage effects did persist but were one-third of initial effects for high school graduates and one-fifth of initial effects for college graduates. The baby-boom cohorts were indeed taxed but their future seems brighter than Freeman's book would indicate.

To provide a sense for the magnitude of these effects, Welch estimated the effects of cohort sizes of relative wages over the 1967-1975 period. He reports that the increasing new entrant share of the labor force predicted reductions in weekly wages of new entrants by 13 percent for college graduates and 8 percent for new high school graduates. For high school graduates relative cohort size of peak earners fell over this period increasing their wages by 2 percent. Thus, new entrant weekly wages were predicted to have fallen relative to peak earners by 10 percent for high school graduates and by 13 percent for college graduates. This compares to an actual change over this period of 12 percent

for high school and 16 percent for college graduates (see Table 6).

In comparing wages across schooling groups, between 1967 and 1975, the predicted change in the college/high school new entrant wage was 5 percent compared to the peak to trough change in Table 5 of 6.8 percent. If these estimates are correct, then what has passed for a new depression in higher education may be unique to the entrants of the early 1970s. For them, as effects erode of their life cycles, the future is brighter, and for subsequent arrivals who themselves will be members of smaller cohorts, the future is also brighter. The wage data for the 1970s are clearly telling an important story. But to us, the weight of the evidence suggests that it is a story of the overcrowded new entrant and not the overeducated American.

WHAT WILL THE FUTURE BRING?

Based on the recursive model discussed above, Freeman makes some projections into the future. On the basis of his model, he paints a not very optimistic future. He predicts that the relative economic status of graduates will level off about 1978, improve moderately in the early 1980s as a result of smaller number of graduates in response to the depressed markets of the 1970s and declines in the size of college age cohorts. In the mid-1980s, the fall in the number of college graduates will create a new boom for new college workers which will level off in the 1990s. Unless there is a sharp increase in demand, this boom will not restore college income to the premium that existed in the 1960s. His scenario is just as bleak for those who received their baccalaureates in the depressed market era. Since they will be followed throughout their lifetimes by large numbers of similarly

situated workers, he argues that supply pressures will likely maintain their low wage status. His forecasts will go a long way to reestablishing economics' reputation as the dismal science.

In the previous section, we have already presented our evidence indicating that the long-run impacts on members of these large cohorts who entered the labor market in the 1970s is likely to be much smaller than Freeman indicates. We have also demonstrated that much of what Freeman calls a new depression results from an inclusion of new entrants in his college group while by and large excluding them from his high school group. To the extent it existed at all, the depth of the new depression was never as severe as Freeman alleged. But there is no doubt that wages of new college (and high school) graduates declined during the 1970s, and the question of future prospects for those who follow them remains. The additional income data available after Freeman's book was published (see Table 1) indicate that the trough in income ratios for new schooling graduates occurred in 1974. We may be more sanguine about future prospects given the recovery suggested by the 1975 and 1976 data. In his study, Welch also projected future incomes of college graduates into 1990 based on cohort sizes of the 1960s and 1970s. Welch reports that in 1990 lifetime income prospects for college graduates will rival those of the most favored classes entering in the 1960s. Whether our more optimistic forecasts prevail over those Freeman reports is a question that should be answered in the next few years.

THE MARKET FOR BLACKS AND WOMEN

In the final chapters of the book, the emphasis shifts from a general analysis of the college labor market to an examination of the relative position within that market of selected groups. Alongside the deterioration in the market for college graduates, the 1960s witnessed an alteration in a number of other historically persistent wage and employment patterns. The interaction of these changes with the declining market for new college graduates is the primary focus of these chapters. Relying on a considerable amount of his research published in much more detail elsewhere (1976), Freeman first considers black college graduates. Income differentials by race have historically been largest among highly schooled blacks. College educated black males traditionally found employment in occupations that serviced the black population (i.e., teachers and preachers), and were rarely employed in high paying management positions alongside whites. This has often been interpreted, as it is here, as indicating that the economic effects of market discrimination impinged most severely on more educated blacks. Freeman demonstrates that the relative economic position of black college graduates improved substantially during the 1960s. In fact, by 1970 almost total racial wage parity among college education males existed in some occupations. Although the largest gains accrued to new black graduates, wage growth relative to whites was also evident among blacks who had received their college training earlier. Paralleling this wage improvement, college enrollments of blacks expanded enormously. In the last twenty years, the proportion of black males attending college more than doubled, with blacks selecting business

oriented fields where monetary incentives are presumably given more weight. In spite of the general decline in the college labor market, these gains achieved by blacks were at least maintained during the 1970s. The principal, if not the exclusive, causative factor cited by Freeman is the enforced compliance to fair employment legislation popularly known as "affirmative action." Title VII of the 1964 Civil Rights Act prohibited both employment and wage discrimination on the basis of race. It also created the Equal Employment Opportunity Commission (EEOC) to monitor firm compliance with the provisions of the Act. The Office of Federal Contract Compliance (OFCC) was established in 1965 to administer an executive order forbidding discrimination by government contractors.

While there can be no doubt that the wages of black college graduates increased substantially in the last fifteen years, we are skeptical of some of Freeman's conclusions. In particular, we question:

1. The idea that the mid-sixties represented a unique and radical departure from the past. We feel that many of the reasons for these changes reflect developments that have been evolving slowly throughout the twentieth century.

2. The almost total reliance on decreases in discrimination against blacks especially as induced by government affirmative action pressures to explain the observed patterns.

3. The highlighting of the admittedly impressive gains of college educated blacks leaves the reader with the impression that little of the benefits filtered down to less skilled blacks.

Table 8 documents some reasons for our concern. There, black-white ratios of weekly wages are listed for high school and college graduates,

Table 8

BLACK-WHITE RATIOS OF AVERAGE WEEKLY EARNINGS
BY YEARS OF WORK EXPERIENCE, 1960 AND 1970

Years of Work Experience	Average Weekly Earnings 1970	1960
High School Graduates		
1-5	.806	.714
6-10	.791	.714
11-15	.749	.682
16-20	.750	.690
21-30	.698	.648
31-40	.690	.590
College Graduates		
1-5	.775	.655
6-10	.692	.582
11-15	.688	.582
16-20	.675	.517
21-30	.667	.421
31-40	.522	.422

SOURCE: Smith-Welch (1977)

The largest improvement is undoubtedly that of college educated blacks, but less skilled blacks also scored impressive gains relative to whites. The decline in wage ratios within each cross-section has often been used as evidence that blacks as a group have been relegated to dead-end jobs with little career growth potential. Wage ratios also decrease with schooling level and the cross-sectional deterioration is more rapid among college graduates. This is the main source for the belief alluded to earlier that black college graduates suffer more from discrimination both in the form of lower wages relative to whites as they begin their market experience and less rapid wage growth over their work careers. However, interpreting life cycle processes from a single cross-section can be extremely misleading. Younger blacks are not only observed at

an earlier point in their work careers, but they are simultaneously members of more recent cohorts. With the two cross-sections contained in Table 8, we can follow individual cohorts over time. The within cohort trends (the experience of a 1960 cohort of workers with 10 years of additional experience in 1970) indicates quite clearly that relative black-white wages did not decline over the life cycle. Instead, the cross-sectional pattern reflects the fact that new cohorts of blacks are performing better in the market relative to whites than their predecessors. This cohort improvement is consistent with two hypotheses. The first is that the real relative marketable skills of blacks have improved even within schooling classes (presumably through better schooling quality or home environments). The alternative explanation would be that labor market discrimination is diminishing through time. In this view, the labor market operates so that a major part of a person's career profile is determined at the time he enters the market. More recent entrants face less discrimination and therefore realize income profiles that are relatively higher in comparison to white or "norm" profiles. But if these changes are assigned to declining discrimination, one cannot rely heavily on laws that were passed in the mid-sixties. The process of cohort convergence has been proceeding far too long for that explanation to be convincing.

In a series of recent articles (1977, 1978), we argued in favor of the first explanation. We found that the advance in the relative income of black males between 1960 and 1975 was due mainly to converging educational and skill distributions by race and a narrowing in wage differentials between regions. Skill levels were relatively constant within cohorts and convergence was accomplished as increasingly similar

racial cohorts entered labor markets while other less similar cohorts retired. This is illustrated first in Table 9, which lists years of school completed for males at point of entry in the labor market from 1930 to 1970. In 1930 the typical black male began his work career with 3.7 fewer years of formal schooling than his white counterpart, and almost 80 percent of these blacks never attended high school. However, as successive cohorts entered the labor force over the last forty years, the competitive disadvantage of blacks continuously dissipated. by 1970 only 1.2 years of schooling separated black and white males at the time of their initial labor force experience.

The story conveyed by nominal years of schooling is reinforced by data on school quality. The current, and often valid, criticism of the quality of contemporary black education makes us forget that the historical situation was much worse. The data on nominal characteristics of schools tells a clear story of a pervasive improvement in the quality

Table 9

YEARS OF SCHOOL COMPLETED AT ESTIMATED TIME OF LABOR MARKET ENTRY

	Year of Labor Market Entry				
	Males				
	1930	1940	1950	1960	1970
Mean Schooling of Blacks	5.9	8.0	9.9	11.1	11.4
Mean Schooling of Whites	9.6	11.1	12.0	12.6	12.6
Proportion of Blacks with less than 9 years of school	0.78	0.58	0.31	0.15	0.11
Proportion of Whites with less than 9 years of school	0.42	0.22	0.15	0.10	0.07

SOURCE: Smith-Welch (1978).

of schools attended by American blacks relative to those attended by whites.

By 1835 every southern state had a law prohibiting the schooling of slaves and some even forbade instruction of freedmen. Emancipation thus came at a time when no slave under thirty years old could legally have been schooled. Until emancipation, most blacks who attended school were freedmen in the North, and they accounted for less than 2 percent of the school age population. The effective origin of mass black education in the South was during and immediately following the Civil War. The Freedman's Bureau financed construction of something like 4,250 schools and the period of Congressional reconstruction, 1867-1875, established free public education on a significant scale as can be seen from the enrollment data of Table 10.

For practical purposes, today's black population was schooled in the twentieth century. The beginning of the century was concurrent

Table 10

BLACK SCHOOL ATTENDANCE RELATED TO SCHOOL AGE POPULATION 1850-1960

Year	Number Attending School (000)	Percent of Total Population 5-20 Years Old
1850	26	1.7
1860	33	1.8
1870	180	9.2
1880	856	32.5
1890	999	32.0
1900	1,097	31.3
1910	1,071	45.4
1920	2,056	54.0

SOURCE: Welch (1973)

with disfranchisement, and quality discrepancies between black and white schools were probably larger than that at any other time. Whatever evidence one selects, the implication is that the trend in this century has been toward equality. Table 11 contains four indices of schooling quality: average days attended, pupils enrolled per classroom teacher, enrollment in first relative to second grade, and school completion levels of public school teachers.

The change that may have been of greatest importance in terms of learning acquired is the convergence in the length of school terms. In 1920, black youths attended school only two-thirds as many days as white students, but there were no real black-white differences in days attended by 1954. Similarly, in 1920 teachers of black students had 1.75 as many pupils as the average teacher in the country. By 1954, this difference had been substantially reduced. The extraordinarily high ratio of first to second graders suggests that on average a black student took about two years to complete the first grade in the 1930s. Retention rates that average 100 percent suggest low quality education coupled with inflexible standards. Between 1940 and 1954 implicit retention rates in southern Negro schools moved toward the national norm.

In 1930, 38 percent of black teachers had not graduated from high school, and another 20 percent had less than two years of college. The rate of increase in average schooling of teachers is perhaps greatest among the several attributes we have examined. In 1930, nine percent of black teachers had the equivalent of a bachelor's degree; by 1952 the proportion had risen to 73 percent. This compares favorably with the 78 percent of Southern white teachers who were college graduates at that time. It is often difficult to link attributes of schools to

Table 11

A.

COMPARISONS OF TWENTIETH CENTURY TRENDS IN CHARACTERISTICS BETWEEN THE SEGREGATED NEGRO SCHOOLS, SOUTHERN WHITE SCHOOLS, AND ALL U.S. SCHOOLS

	Average Days Attended Per Pupil Enrolled		Pupils Enrolled per Classroom Teacher		Enrollment in First Relative to Second Grade	
Year	Negro Schools	All Schools	Negro Schools	All Schools	Negro Schools	All Schools
1899-1900	57	69[a]	56.7	42.5[a]	1.37	1.14[a]
1908-09	71	88	56.4	39.9	1.45	1.49[a]
1919-20	80	121	56.0	31.8	1.96	1.64
1929-30	97	143	43.7	30.0	2.35	1.48
1939-40	126	152	45.3	29.0	2.03	1.29
1949-50	148	158	33.6	27.5	1.62	1.20
1953-54	151	159	32.9	27.9	1.45	1.25

[a]Southern white schools only.

B.

School Completion Levels of Public School Teachers in Segregated Southern Schools 1930-1952

Year	1930	1939-40		1949-50		1951-52	
Percentage of Teachers Who Had Completed	Negro Schools	Negro Schools	White Schools	Negro Schools	White Schools	Negro Schools	Negro Schools
a) Less than two years of college	58	30	7	14	6	9	3
b) Four or more years of college	9	35	60	65	72	73	78

measures of school achievement, but the consistent picture of simultaneous convergence in all these dimensions makes the case for improving quality of black schools plausible. Most of this increase in the quality of black schooling flowed from the migration of blacks from the South (where schooling quality was low for both races relative to the rest of the country) and the improvement in Southern schools. While a broad view of 20th Century experience leaves little doubt in our minds about the enhancement in schooling quality for blacks, there is, however, a legitimate question as to whether these trends have continued in the last few years.

In regional explanations of the changes in wage ratios, southern location accounted for a significant part of the rise in black wages. Although migration flows had a small favorable impact on blacks, convergence towards the national norm in black-white southern wages was far more important. Relative black-white wage ratios for both sexes rose more rapidly in the South, especially among the young. For males with less than 10 years of experience and for women under 30 years old, relative black-white wages increased by 10 percent more than in the rest of the country.

Where does all this leave Freeman's explanation of declining discrimination? Clearly, the factors we have mentioned so far do not exclude the possibility that governmental action had an independent effect. There is considerable popular evidence based on interviews with firms that they are very much aware of legal problems if they do not hire a "reasonable" proportion of blacks. Unfortunately, the scientific quality of the evidence on this issue is in a very primitive state. There is no consensus about the appropriate test nor is data available of

sufficient scale and quality that controls for other potential factors. Moreover, the existing studies on the effects of affirmative action yield conflicting results.

Because they do not deal with economy-wide effects, case studies of EEOC and OFCC have been the least useful in determining aggregate effects on black-white wage ratios. In their survey of this research, Butler and Heckman (1977) cite the work of Andrea Beller (1974) as the most sophisticated of the micro-studies of EEOC. She concluded that the enforcement of the wage and employment provisions of the 1964 Civil Rights Act appears to have a slight negative economy-wide impact on relative employment and no (or possibly a negative) impact on relative wages. The OFCC studies are of questionable use because they deal only with relative employment effects and contain no information on relative wage effects. Butler and Heckman conclude that the evidence suggests small but positive short- and long-run effects on employment, but possible negative effects on relative occupational position.[1]

The most important study arguing for an important government role was conducted by Freeman (1973). With time-series data from 1947-1971, Freeman regressed the black-white income ratios on a time trend, deviations from GNP as a proxy for cyclic variation, relative education of blacks, and a variable measuring cumulative EEOC expenditures. The latter variable was used as an index of federal antidiscrimination programs and had a statistically significant positive

[1]Another class of studies has concentrated on studying the actual mechanics of enforcement by the two agencies. The mechanics include funding and staffing levels, and length of time of litigation. The hard and anecdotal evidence makes one very skeptical that these agencies have had much impact. See Wallace (1975).

coefficient. On the basis of this evidence, Freeman concluded that affirmative action pressures had shifted the time-series pattern of relative wages toward blacks.

The ability of limited time-series data to detect the effect of affirmative action and more importantly to discriminate among alternative hypotheses is questionable. There was a dramatic increase between 1965 and 1966 in black-white ratios, which is often used as evidence that the civil rights laws that just preceded this increase were a factor in accounting for the recent improvement in the earnings of blacks. Variables that also change rapidly during the same period--such as Freeman's cumulative EEOC expenditure series--will undoubtedly capture the sharp break at this time in the time series pattern. However, year-to-year changes in this series are often quite irregular. For example, there are two other points (1951-1952 and 1958-1959) where the increase in the black-white ratio is almost as large as the 1965-1966 change. In these years there was, of course, no comparable legislation. Moreover, if the time series data is decomposed into regions of the country the only sharp break in the series occurs in the South in the late fifties. While Southerners could be credited with clairvoyance in anticipating future legislative action, the data may be telling a different story.

In our previous research (Smith and Welch, 1977) we attempted to test the influence of government on the rise in black-white wage ratios. We argued there that the implied threat of pressures on government contractors for affirmative action gave us our best chance to observe the effects of this legislation. Our method was an indirect one--to focus on workers most susceptible to government influence. We

identified workers by the degree of their contact with the government--direct government employees, workers in industries regulated by the government, and those in industries that sell a large part of their product to the government. If affirmative action was an important causal factor, its impact should have been strongest on employment and wage trends in these industries. Our empirical research indicated, however, that for males the largest gains in black-white ratios occurred in those industries least vulnerable to federal or local government influence--i.e., the private sector. We concluded on the basis of our Census study that the aggregate effects of affirmative action since the 1960s was probably small.

We are not sufficiently comfortable with even our study to make any definitive assessment on the role of its 1960's civil rights legislation. We do feel that Freeman exaggerates their importance and the uniqueness of this period relative to the other factors we mentioned above. Yet, there are a number of patterns in the data that are suggestive about the effects of this legislation. For example, by setting employment quotas by race, the largest benefits should accrue to blacks where they are most scarce--i.e. in skilled occupations. The more rapid improvement for black college graduates is certainly consistent with this. Distributional impacts within the black population may be important even if aggregate effects of black-white wages are not. However, a good deal more methodological and empirical research is necessary before one accepts even a toned-down version of Freeman's view.

Freeman next turns his attention to college educated women. Income returns from college have traditionally been lower for women than men and fewer women attended college. But in recent years there

have been significant changes in the labor market for women. The secular growth in labor force participation rates for married women accelerated during the last fifteen years. While the overall wage position for women has not changed substantially, Freeman notes moderate improvement in the economic status of college women relative to men. In particular, college women have entered traditionally male dominated occupations and received wages in these occupations comparable to those of men. Moreover, the wages of college educated women did not decline as much as those of men in the depressed market and college enrollments of women increased. A counterbalancing force to these trends is the expected decline of the teaching profession--a traditional stronghold for female employment.

Freeman cites four factors that may have altered the job market for women in the 1960s:

1. The civil rights laws and executive orders mentioned earlier also prohibited discrimination on the basis of sex.

2. The growth during this period of the woman's movement.

3. The substantial decline in the birth rate during the 1960s lessened the family responsibilities of these women and made it easier for them to work.

4. Traditional attitudes towards sex roles have been changed, perhaps as a result of the first two factors.

> "While a detailed study of changes in various professions and degree programs is needed to pin down the locus and cause of these changes in the returns to female investments in college, it seems plausible that the overall gains are due to the improved market for college women resulting from the activity of the woman's liberation movement and federal affirmative action."

We frankly find this to be the weakest chapter in the book. Writing a popularized version of one's research is a legitimate and useful business as long as there is a body of good research underlying it. In this case, we know of no research by Freeman (or in fact by other economists) that supports his speculations about the female labor market. The growth in female labor force participation has been proceeding throughout the twentieth century and long predates the political woman's movement in the 1960s. Freeman's speculations are good for the soul and easy on the intellect, but this chapter does a disservice to the stimulating and serious research contributions he makes in the earlier chapters. His book would have been stronger if the temptation to include the chapter on women had been resisted.

CONCLUSION

In this review, we have offered a critical assessment of Richard Freeman's intriguing and challenging book *The Overeducated American*. The basic thesis of his work is that college trained manpower is in a state of serious over-supply and is likely to remain so for many years to come. As part of our review, we have reexamined the wage and employment data for the 1970s. These data are clearly telling a fascinating story of adjustments to large entering cohorts. But to us it is a story of an overcrowded new entrant and not an overeducated American. The absence of any reduction in the relative wages of more experienced college workers during this decade represents a serious challenge to Freeman's hypothesis. If their wages do not decline in the next five years, and if the wages of new entrant college graduates of the 1970s recover most of their initial setbacks, then concerns over the impending death of the college diploma should themselves be laid to rest.

BIBLIOGRAPHY

Beller, A. H., "The Effects of Title VII of the Civil Rights Act of 1964 on the Economic Position of Minorities," Ph.D. dissertation, Columbia University, New York, 1974.

Butler, Richard, and James Heckman, "The Impact of the Government in the Labor Market Status of Black Americans: A Critical Review of the Literature and Some New Evidence," unpublished paper, 1977.

Easterlin, Richard, "Relative Economic Status and the American Fertility Survey," in Eleanor B. Sheldon (ed.), *Social Structure, Family Life Cycles, and Economic Behavior*, J. P. Lippincott, Philadelphia, 1972.

Freeman, Richard, *The Overeducated American*, Academic Press, New York, 1976.

-----, "The Decline in the Economic Rewards to College Education," *The Review of Economics and Statistics* (forthcoming).

-----, *Black Elite, The New Market for Highly Educated Black Americans*, McGraw-Hill, New York, 1976.

-----, "Overinvestment in College Training," *Journal of Human Resources*, Summer 1975, pp. 287-311.

-----, "Changes in the Labor Market of Black Americans, 1948-1972," *Brookings Papers*, Vol. 1, Washington, D.C., 1973, pp. 67-120.

-----, *The Labor Market for College Trained Manpower*, Harvard University Press, Cambridge, Massachusetts, 1971.

Smith, James P., and Finis Welch, "Black-White Wages Ratios: 1960-1970," *American Economic Review*, June 1977.

-----, "Local Labor Markets and Cyclic Components in Demand for College Trained Manpower," INSEE Conference on the Econometrics of Panel Data, Paris, forthcoming.

-----, "Race Differences in Earnings: A Survey and New Evidence," in *Issues in Urban Economics*, P. Merskowski and M. Strassheim, editors, Johns Hopkins Press, forthcoming.

Wallace, Phyllis A., "A Decade of Policy Development in Equal Opportunities in Employment and Housing," Massachusetts Institute of Technology Paper No. 767-75, January 1975.

Welch, Finis, "The Effects of Cohort Size on Earnings: The Baby Boom Babies' Financial Bust," *Journal of Political Economy*, forthcoming.